CALIFORNIA
ENERGY
COMMISSION

QUARTERLY REPORT
CONCERNING
MTBE USE IN CALIFORNIA GASOLINE
October 1 through December 31, 2001
Report to the Legislature

STAFF REPORT

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Gray Davis, ***Governor***

CALIFORNIA ENERGY COMMISSION

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Quarterly Report Concerning
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Background

Senate Bill 1001 (Burton), Chapter 814, Statutes of 1999, requires the California Energy Commission to prepare a quarterly report on the use of methyl tertiary butyl ether (MTBE) in California gasoline. This report summarizes the amount of MTBE each California refinery used during the preceding quarter — October 1 through December 31, 2001.

The amount of MTBE reported in this document is the quantity blended at each refinery location for use in the production of California Reformulated Gasoline (CaRFG) and intended for sale in the state. The numbers do not include any MTBE used at California refineries for the production of any type of gasoline intended for sale outside the state. In addition, several small refineries operating in the state are not included in this report because they do not produce gasoline.

MTBE, a compound containing oxygen, is an oxygenate that is used to produce gasoline in California. California refiners also use two other oxygenates, ethanol and tertiary amyl methyl ether, but in significantly smaller volumes compared to MTBE. Federal law requires California refiners to use a minimum amount of oxygen in all reformulated gasoline sold in severe and extreme ozone-nonattainment regions of the state. Those areas in California (mostly in Southern California and the Sacramento Metropolitan Area) account for over 70 percent of the gasoline used in the state. California's request for a waiver from this requirement from the U.S. Environmental Protection Agency was denied on June 12, 2001.

The California Air Resources Board adopted reformulated gasoline regulations that enable refiners to produce fully complying gasoline without the use of any oxygenates. Thus, if the request to waive the federal minimum-oxygen requirement had been granted, California refiners would have been able to reduce the volume of MTBE blended into gasoline. However, until refiners complete refinery modifications, they will likely need some MTBE to help them meet desired octane levels in premium grades of gasoline and in reduced quantities in other grades to help achieve compliance with reformulated-gasoline specifications.

Fourth Quarter 2001 Results

California refiners used eight million barrels of MTBE to make CaRFG during the fourth quarter of 2001. This amount represents approximately 87,000 barrels per day of MTBE or 3.7 million gallons per day.[1] Table 1 shows the use of MTBE by each refinery in California and total CaRFG production. Compared to the previous quarter, the total volume of MTBE used by California's refiners decreased by 9.3 percent. CaRFG production totaled 89.8 million barrels in the third quarter and 86.5 million barrels in the fourth quarter of 2001, for a

[1] A barrel is equivalent to 42 U.S. gallons.

3.6 percent decrease. The 9.3 percent decrease in the use of MTBE and the 3.6 percent decrease in gasoline resulted in the average concentration of MTBE falling from 9.8 percent in the third quarter of 2001 to 9.3 percent in the fourth quarter of 2001.

Figure 1 illustrates the concentration of MTBE used in California's gasoline for each of the quarters during the period of 2000 through 2001. The concentration of MTBE decreased sharply in the first quarter of 2001 and modestly in the second quarter of 2000 and the fourth quarter of 2001. The sharp drop in concentration of MTBE during the first quarter of 2001 was due to the combined factors of a significant reduction in MTBE use by Tosco and the higher relative price of MTBE compared to CaRFG over the previous quarter. The drop in concentration of MTBE during the second quarter of 2000 and the fourth quarter of 2001 is primarily a result of economic factors, the higher price of MTBE relative to CaRFG.

Figure 2 compares the average quarterly spot price of CaRFG to the spot price for MTBE. The chart indicates that not only the prices of MTBE and CaRFG vary, but also the relative difference between these prices varies. The changing relative prices lead to the changing economic incentives to increase or decrease the concentration of MTBE within required blending limits. During the first, third, fourth quarters of 2000 and the third quarter of 2001 the price of MTBE was low relative to CaRFG and refiners had a greater incentive to use MTBE. During the second quarter of 2000 and the first and fourth quarters of 2001, MTBE was relatively expensive and refiners had a greater incentive to decrease the use of MTBE.

In the second quarter of 2001, the difference in prices of MTBE and CaRFG though higher than some earlier quarters decreased from the previous quarter. This trend continued into the third quarter. Refiners responded in both of these quarters by increasing the average concentration of MTBE in California gasoline. In the fourth quarter of 2001, MTBE prices rose relative to CaRFG and refiners responded to the higher relative prices by slightly decreasing the average concentration of MTBE.

Non-economic factors are also significant in the varying MTBE use and CaRFG production. These factors may affect only individual refineries or the entire industry . These factors include planned refinery downtime (typically for maintenance), unplanned refinery outages due to process equipment problems, seasonal changes in gasoline demand, seasonal changes in CaRFG standards (which are more stringent during the summer months), and shifts in production of non-MTBE gasoline (which is typically higher during the winter months).

Note, the actual volume of pure MTBE is less than the totals as illustrated below. The purity of MTBE varies depending on the source. Approximately 88 percent of the MTBE used by California refiners is imported and its quality is normally 95 percent pure MTBE with 5 percent impurities in the form of other hydrocarbons. The other source of MTBE originates from production facilities located within some California refineries. The purity of California-produced MTBE is normally lower than that of the imported MTBE, increasing physical volumes of this portion of the supply.

[2] Phillip Petroleum Company closed on its acquisition of Tosco Corporation on September 19, 2001.

Table 1
California MTBE Use By Refinery Location

Refiner	California Location	MTBE Use This Quarter 4th Qtr – 2001 (Thous. Of Barrels)	MTBE Use This Quarter 3rd Qtr – 2001 (Thous. Of Barrels)	Change From Previous Quarter (Percent)
BP[3]	Carson	2,126	2,088	1.8
Chevron	El Segundo	1,120	1,125	-0.4
Chevron	Richmond	301	223	35.0
Equilon[4]	Bakersfield	229	242	-5.4
Equilon[5]	Los Angeles	611	543	12.5
Equilon[6]	Martinez	518	764	-32.2
Exxon-Mobil	Torrance	740	739	0.1
Kern Oil	Bakersfield	90	80	12.5
Phillips[7]	Los Angeles	169	161	5.0
Phillips[8]	Rodeo	0	0	0.0
UDS[9]	Avon	423	636	-33.5
UDS[10]	Wilmington	667	1,027	-35.1
Valero[11]	Benicia	1,006	1,188	-15.3
State Refinery MTBE Totals		**8,000**	**8,816**	**-9.3**
State CaRFG Production		**86,523**	**89,757**	**-3.6**
Statewide Average MTBE Content		**9.25%**	**9.82%**	**-5.8**

Source: California Energy Commission form number Q1001

[3] Formerly known as the ARCO – Carson refinery prior to the merger between BP Amoco and ARCO.

[4] Formerly known as the Texaco – Bakersfield refinery prior to the merger between Texaco and Shell.

[5] Formerly known as the Texaco – Los Angeles refinery prior to the merger between Texaco and Shell.

[6] Formerly known as the Shell – Martinez refinery prior to the merger between Texaco and Shell.

[7] Formerly known as the Tosco – Los Angeles refinery prior to the purchase by Phillips Petroleum Co.

[8] Formerly known as the Tosco – Rodeo refinery prior to the purchase by Phillips Petroleum Co.

[9] Formerly known as the Tosco – Avon refinery prior to the purchase by Ultramar Diamond Shamrock.

[10] Ultramar Diamond Shamrock

[11] Formerly known as the Exxon/Mobil – Benicia refinery prior to the purchase by Valero.

Figure 1
California Gasoline
MTBE Concentration

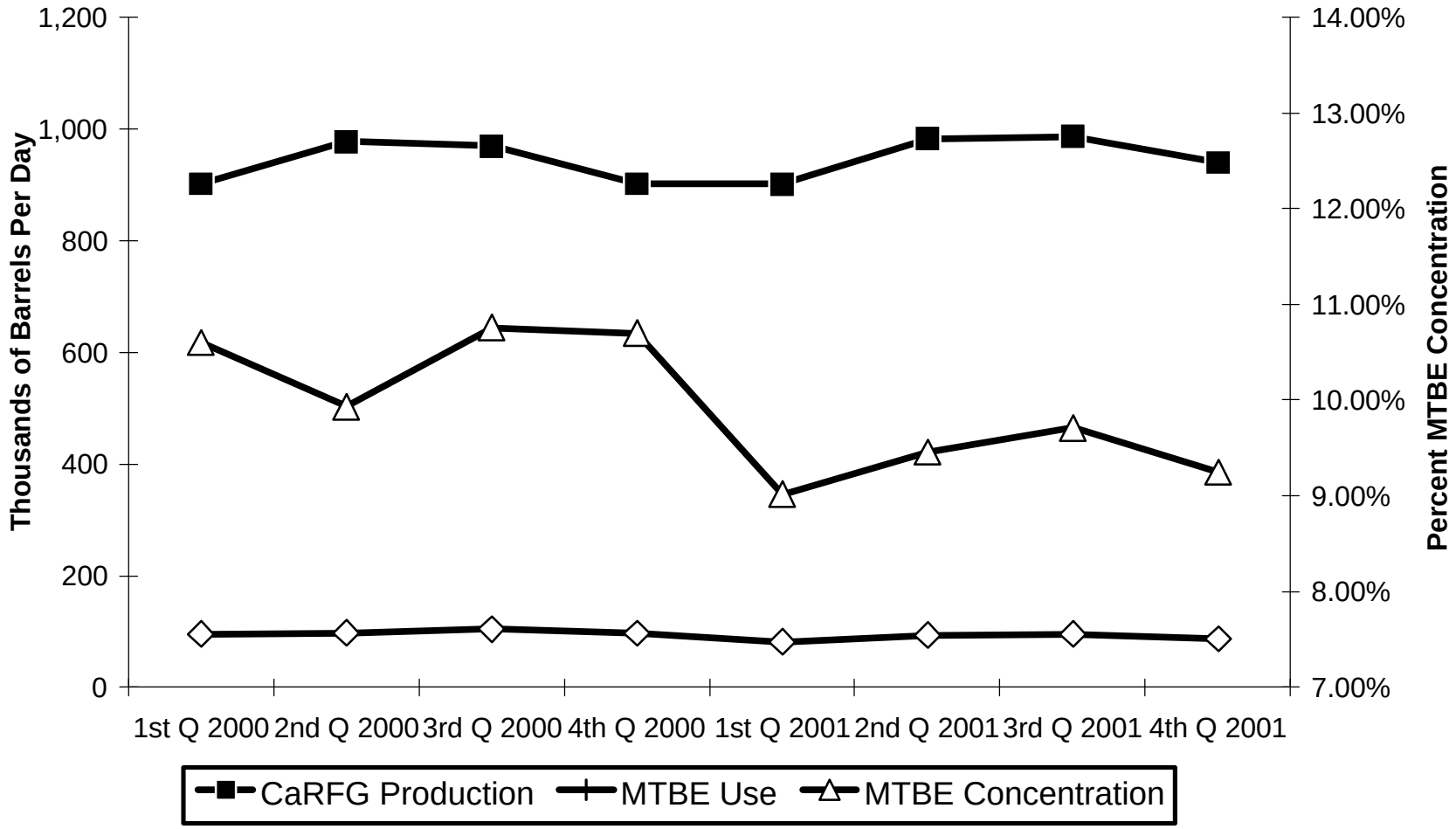
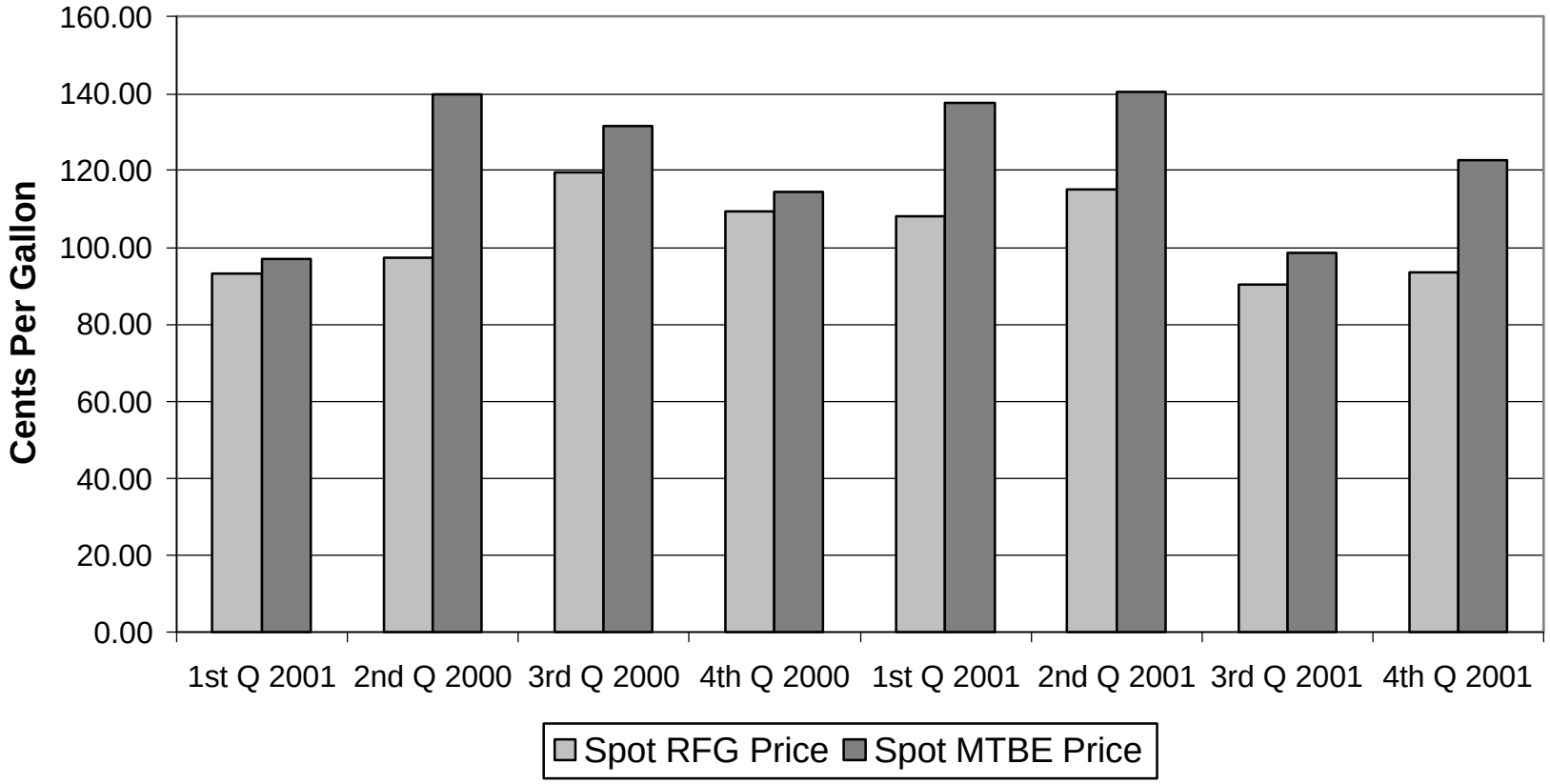


Figure 2
CaRFG vs. MTBE Spot Prices
Los Angeles



Source: California Energy Commission derived averages from Oil Price Information Service daily west coast spot market reports.